

Serial No. 09/847,044
Amdt. Dated January 11, 2005
Reply to Final Office Action of November 17, 2004

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claims 1-7 (canceled)

Claim 8 (currently amended): A method for joining a cluster with a cluster membership monitor within a clustered computer network, comprising the steps of:

- starting a local cluster membership monitor entity on a node when it boots;
- with the local cluster membership monitor entity, establishing contact with peer cluster membership monitor entities on peer nodes of the cluster;
- when the peer nodes are found, performing a consensus protocol with the booting node and the found peer nodes;
- when the consensus protocol performing results in a consensus being achieved, determining whether one of the found peer nodes is a master node of the cluster; [[and]]
- if the master node is determined, joining the cluster with the booting node[[.]]

; and

using the local cluster membership monitor entity on the booting node to obtain configuration data from a master cluster membership monitor entity located on the master node and configuring the booting node based on the obtained configuration data.

Claims 9-10 (canceled)

Claim 11 (currently amended): The method of claim [[10]] 8, further comprising the step of logging in a local system log of the master node a cluster joining event indicating addition of the booting node as one of the peer nodes of the cluster.

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Claim 12 (currently amended): A method for monitoring the viability of cluster members comprising the steps of

identifying one of the cluster members as a master node;

providing a heartbeat by the master node to other ones of the cluster members;

if the heartbeat received by viable nodes among the other ones is within a peer node time-out period, operating the viable nodes to respond to the master node; and

if the heartbeat received by the viable nodes is outside the peer node time-out period, operating at least one of the viable nodes to initiate a reformation of the cluster members[.];

wherein the cluster reformation further comprises the steps of:

verifying if cluster reformation has already been initiated, wherein if cluster reformation has not been initiated, cluster reformation is initiated;

determining a master node priority of each of the viable nodes;

electing the viable node with the highest master node priority to be a new master node; and

operating the new master node to repeat the providing of the heartbeat to the other ones of the cluster members.

Claim 13 (previously presented): The method of claim 12, further comprising the steps of

maintaining a master list of the cluster members with the master node;

with the master node, verifying that each of the other ones has responded to the heartbeat; and

if all nodes listed in a master list of cluster members have responded, providing another heartbeat with the master node;

otherwise operating the master node to remove a node not responding from the list of the cluster members ; and

with the master node, making a cluster change request.

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Claim 14 (previously presented): The method of claim 13, wherein the cluster change request further comprises notifying a cluster coordination function to update the list of the cluster members.

Claim 15 (canceled)

Claim 16 (currently amended): A system for monitoring cluster membership within a clustered computer network, comprising

a plurality of peer nodes communicatively linked within the clustered computer network and each locally running a cluster membership monitor and having a master node priority value;

wherein a one of the peer nodes having the highest of the master node priority values is elected as a master node;

wherein the one of the peer nodes elected as the master node further stores a cluster configuration defining a set of the peer nodes which are members of a cluster and defining configuration data for the member peer nodes; [[and]]

wherein the master node periodically transmits a heartbeat to each of the member peer nodes and viable ones of the member peer nodes respond to provide an indication of viability[[.]] ; and

wherein the locally running cluster membership monitor on a booting one of the plurality of peer nodes obtains at least a portion of the configuration data from the master node and configures the booting one of the plurality of peer nodes based on the obtained configuration data.

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Claim 17 (previously presented): The system of claim 16, wherein the viable ones of the member peer nodes only perform the responding when the heartbeat is received within a period of time defined in the configuration data and when not received with the period of time, at least one of the viable ones of the member peer nodes initiates a cluster reformation which includes determining a new master node among the viable ones of the member peer nodes based on the master node priority values.

Claim 18 (previously presented): The system of claim 17, wherein the new master node stores the cluster configuration defining a new set of the peer nodes which are members of the cluster and periodically transmits a heartbeat to each of the peer nodes in the new set of cluster members.